being brought nearer to the diſtinct Baſe of the Object Glaſs; and an Eye leſs Convex, the office of a leſs Convex Eye-Glaſs: but with this difference, that the more Convex the Eye is, the eaſier may any part of the Object be found, and the larger and more lucid it will appear.

I have ſeen *Saturn*'s Ring very plain with an Object-Glaſs of little more than ſix Foot *Radius*, without an Eye-Glaſs.

I have alſo found out a way for the *Preſbytæ* to make uſe of an Object-Glaſs, by placing their Eye nearer the *Lens* than its *Focus*, by ſo much as their Eye is flatter than a common Eye, ſo as to make (as it were) the Teleſcope of *Galilæo*; the flat Eye ſerving as a common Eye arm'd with a Concave *Lens*. I have ſo fixed the Teleſcope, as to make a *Preſbyta* read at a great diſtance a ſmall Print. The truth of this may be eaſily demonſtrated, if it be requir'd.

If this Experiment be made at Sea with a very large Tube, big enough to put in the Head and move it about, and the Object-Glaſs be alſo large, it may not perhaps be difficult to obſerve the Eclipſes of the *Satellites* of *Jupiter*, which I would recommend to the Conſideration of thoſe that would try for the Longitude by ſuch like Obſervations.

VI. *New and accurate Tables for the ready Computing of the* Eclipſes *of the* firſt Satellite *of* Jupiter, *by Addition only. By the Reverend Mr* James Pound, R. S. S.

IN *Numb.* 214. of theſe *Tranſactions*, for the Months of *Novem* and *Decem.* 1694. we exhibited an Epitomy of Mr. *Caſſini*'s curious Tables then newly publiſhed. for computing the Eclipſes of the *firſt Satellite* of *Jupiter*, without the help of any other Numbers. The eaſe of this *Calculus* gave great ſatisfaction to thoſe that delight in Teleſcope obſervations; and has been of good uſe to encourage Aſtronomers to aſcertain the Geographical Longitudes of many places, by help of theſe Eclipſes; whoſe frequency ſeems to afford us the propereſt means for that purpoſe.

But it being now 26 Years ſince thoſe Tables were publiſhed, length of Time has diſcovered that this *Satellites* motion is a ſmall matter ſwifter than M. *Caſſini* had ſuppoſed it; and the Reverend Mr. *Pound* being provided with all the Qualifications requiſite for ſuch a Work, has of late apply'd himſelf to rectify by frequent Obſervation what he found amiſs in the aforeſaid *Calculus*; and withal has put it into another Form yet much more eaſy and compendious, by bringing what M. *Caſſini* had given us in odd Numbers, to the Milleſimals of a Circle, both as to *Numb.* I. which he calls *Numb.* A. being the mean Anomalie of *Jupiter* in ſuch parts; as alſo to *Numb.* II. or our *Numb.* B. which is the diſtance of the mean place of *Jupiter*, from the true place of the *Sun*, and which with the addition of the Equation of *Numb.* B. gives the true angle of *Commutation* in the ſame Milleſimals of a Circle. And having deducted from the *Epoches* the greateſt Equations both of *Numb.* A and B. he reſtores them by adding as much to the Equations themſelves, by which means they all become Affirmative, ſo that the whole computation is performed by Addition only.

The Reader is ſuppoſed to be acquainted with the Method of M. *Caſſini*'s *Calculus*, which is at large explain'd in the aforeſaid *Tranſaction, Num.* 214. For which reaſon this ſhorter Deſcription may ſuffice at preſent.

Epochæ Conjunctionum Primi Satellitis Cum Jove.

An. Jul. Curr.	Conjunct.				Num.	Num.	An. Jul. Curr.	Conjunct.				Num.	Num.
	D.	H.	′	″	A.	B.		D	H.	′	″	A.	B
1719	1	6	11	13	872	396	1749	0	11	9	34	400	866
1720	0	20	22	40	956	310	1750	0	1	21	1	485	780
21	1	5	2	44	40	229	51	1	10	1	5	569	698
22	0	19	14	11	125	143	52	1	0	12	33	653	612
23	0	9	25	38	209	57	53	1	8	52	37	738	531
1724	1	18	5	42	293	971	1754	0	23	4	4	822	445
1725	0	8	17	10	377	889	1755	0	13	15	32	906	359
26	1	16	57	13	462	808	56	0	3	27	0	990	273
27	1	7	8	41	546	722	57	0	12	7	3	75	191
28	0	21	20	8	630	636	58	0	2	18	30	159	110
1729	1	6	0	12	715	554	1759	1	10	58	34	243	24
1730	0	20	11	39	799	468	1760	1	1	10	1	328	938
31	0	10	23	7	883	382	61	1	9	50	35	412	856
32	0	0	34	34	967	296	62	1	0	1	2	496	770
33	0	9	14	38	52	215	63	0	14	13	0	580	684
1734	1	17	54	41	136	133	1764	0	4	24	27	665	598
1735	1	8	6	9	220	47	1765	0	13	4	31	749	517
36	0	22	17	36	305	961	66	0	3	15	58	833	431
27	1	6	57	40	389	880	67	1	11	56	2	918	349
38	0	21	9	7	473	794	68	1	2	7	29	2	263
1739	0	11	20	35	557	708	1769	1	10	47	33	86	182
1740	0	1	32	2	642	622	1770	1	0	59	0	171	96
41	0	10	12	6	726	540	71	0	15	10	28	255	10
42	0	0	23	33	810	454	72	0	5	21	56	339	924
43	1	9	3	37	895	373	73	0	14	2	0	423	842
1744	0	23	15	4	979	287	1774	0	4	13	27	508	761
1745	1	7	55	8	63	205	1775	1	12	53	31	592	675
46	0	22	6	35	148	119	76	1	3	4	58	676	589
47	0	12	18	3	232	33	77	1	11	45	1	761	507
48	0	2	29	30	316	947	78	1	1	56	28	845	421
1749	0	11	9	34	400	866	1779	0	16	7	56	929	335

Revolu-

Revolutiones Primi Satellitis Jovis in menſibus.

Januarii.				N.	Nu.
D.	h.	'	''	A.	B.
1	18	28	36	0	5
3	12	57	12	1	9
5	7	25	48	1	14
7	1	54	24	2	18
8	20	23	0	2	23
10	14	51	36	2	27
12	9	20	12	3	32
14	3	48	48	3	37
15	22	17	24	4	41
17	16	46	0	4	46
19	11	14	36	4	51
21	5	43	12	5	55
23	0	11	47	5	60
24	18	40	23	6	64
26	13	8	59	6	69
28	7	37	35	7	73
30	2	6	11	7	78
31	20	34	47	7	82
Februarii					
0	20	34	47	7	82
2	15	3	23	8	87
4	9	31	59	8	92
6	4	0	35	9	96
7	22	29	11	9	101
9	16	57	47	9	105
11	11	26	23	10	110
13	5	54	59	10	114

Februarii.				N.	Nu.
D.	h.	'	''	A.	B.
15	0	23	35	11	118
16	18	52	11	11	123
18	13	20	47	11	128
20	7	49	23	12	132
22	2	17	59	12	137
23	20	46	35	13	141
25	15	15	11	13	146
27	9	43	47	13	150
Martii.					
1	4	12	23	14	155
2	22	40	59	14	159
4	17	9	35	15	164
6	11	38	10	15	168
8	6	6	46	16	173
10	0	35	22	16	177
11	19	3	58	16	182
13	13	32	34	17	186
15	8	1	10	17	190
17	2	29	46	18	195
18	20	58	22	18	199
20	15	26	58	18	204
22	9	55	34	19	208
24	4	24	10	19	213
25	22	52	46	20	217
27	17	21	22	20	221
29	11	49	58	20	225
31	6	18	34	21	230

Revolutiones Primi Satellitis Jovis in menſibus.

D.	h.	′	″	N. A.	Nu. B.
Aprilis.					
0	6	8	34	21	230
2	0	47	10	21	235
3	19	15	46	22	239
5	13	44	22	22	244
7	8	12	58	22	248
9	2	41	34	23	252
10	21	10	10	23	257
12	15	38	46	24	261
14	10	7	22	24	265
16	4	35	58	25	270
17	23	4	33	25	274
19	17	33		25	279
21	12	1	45	26	283
23	6	30	21	26	287
25	0	58	57	27	292
26	19	27	33	27	296
28	13	56	9	27	300
30	8	24	45	28	304
Maii.					
0	8	24	45	28	304
2	2	53	21	28	309
3	21	21	57	29	313
5	15	50	33	29	317
7	10	19	9	29	322
9	4	47	45	30	326
10	23	16	21	30	330
12	17	44	57	31	335
14	12	13	33	31	339
Maii.					
16	6	42	9	31	343
18	1	10	45	32	348
19	19	39	21	32	352
21	14	7	57	33	356
23	8	36	33	33	361
25	3	5	9	33	365
26	21	33	45	34	369
28	16	2	21	34	373
30	10	30	57	35	378
Junii					
0	10	30	57	35	378
1	4	59	32	35	382
2	23	28	8	36	386
4	17	56	44	36	391
6	12	25	20	36	395
8	6	53	56	37	399
10	1	22	32	37	403
11	19	51	8	38	408
13	14	19	44	38	412
15	8	48	20	38	416
17	3	16	56	39	420
18	21	45	32	39	425
20	16	14	8	40	429
22	10	42	44	40	433
24	5	11	20	40	438
25	23	39	56	41	442
27	18	8	32	41	446
29	12	37	8	42	450

Revolutiones Primi Satellitis Jovis in menſibus.

Julii D.	h.	′	″	N. A.	Nu. B.
1	7	5	44	42	455
3	1	34	20	42	459
4	20	2	56	43	463
6	14	31	32	43	468
8	9	0	8	44	472
10	3	28	44	44	476
11	21	57	20	45	480
13	16	25	55	45	485
15	10	54	31	45	489
17	5	23	7	46	493
18	23	51	43	46	498
20	18	20	19	47	502
22	12	48	55	47	506
24	7	17	31	47	510
26	1	46	7	48	515
27	20	14	43	48	519
29	14	43	19	49	523
31	9	11	55	49	528
Auguſti.					
0	9	11	55	49	528
2	3	40	31	49	532
3	22	9	7	50	536
5	16	37	43	50	541
7	11	6	19	51	545
9	5	34	55	51	549
11	0	3	31	51	554
12	18	32	7	52	558
14	13	0	43	52	562

Auguſti. D.	h.	′	″	N. A.	Nu. B.
16	7	29	19	53	567
18	1	57	55	53	571
19	20	26	31	54	575
21	14	55	7	54	580
23	9	23	43	54	584
25	3	52	18	55	588
26	22	20	54	55	593
28	16	49	30	56	597
30	11	18	6	56	602
Septembris.					
1	5	46	42	56	606
3	0	15	18	57	610
4	18	43	54	57	615
6	13	12	30	58	619
8	7	41	6	58	624
10	2	9	42	58	628
11	20	38	18	59	632
13	15	6	54	59	637
15	9	35	30	60	641
17	4	4	6	60	646
18	22	32	42	60	650
20	17	1	18	61	655
22	11	29	54	61	659
24	5	58	30	62	663
26	0	27	6	62	668
27	18	55	42	62	672
29	13	24	18	63	677

Revolutiones Primi Satellitis Jovis in menſibus.

Octobris. D.	h.	′	″	N. A.	Nu. B.
1	7	52	54	63	681
3	2	21	30	64	686
4	20	50	6	64	690
6	15	18	41	65	695
8	9	47	17	65	699
10	4	15	53	65	704
11	22	44	29	66	708
13	17	13	5	66	713
15	11	41	41	67	717
17	6	10	17	67	721
19	0	38	53	67	726
20	19	7	29	68	730
22	13	36	5	68	735
24	8	4	41	69	739
26	2	33	17	69	744
27	21	1	53	69	749
29	15	30	29	70	753
31	9	59	5	70	758
Novembris.					
0	9	59	5	70	758
2	4	27	41	71	762
3	22	56	17	71	767
5	17	24	53	71	772
7	11	53	29	72	776
9	6	22	5	72	781
11	0	50	41	73	785
12	19	19	17	73	790
14	13	47	53	74	794

Novembris. D.	h.	′	″	N. A.	Nu. B.
16	8	16	29	74	799
18	2	45	5	74	804
19	21	13	40	75	808
21	15	42	16	75	813
23	10	10	52	76	817
25	4	39	28	76	822
26	23	8	4	76	827
28	17	36	40	77	831
30	12	5	16	77	836
Decembris.					
0	12	5	16	77	836
2	6	33	52	78	840
4	1	2	28	78	845
5	19	31	4	78	849
7	13	59	40	79	854
9	8	28	16	79	859
11	2	56	52	80	863
13	21	25	28	80	868
14	15	54	4	80	873
16	10	22	40	81	877
18	4	51	16	81	882
19	23	19	52	82	886
21	17	48	28	82	891
23	12	17	4	82	897
25	6	45	40	83	900
27	1	14	16	83	905
28	19	42	52	84	909
30	14	11	28	84	914

Primæ Æquationes Conjunctionum Primi Satellitis cum Jove.

Num. A.	Æquat. Conjun. Adde.		Æq Nu. B	Num. A.	Æquat. Conjun. Adde.		Æq Nu. B	Num. A.	Æquat. Conjun. Adde.		Æq Nu. B.	Num. A.	Æquat. Conjun. Adde.		Æq Nu. B.
	'	"			'	"			'	"			'	"	
0	39	8	15	128	12	7	26	256	0	1	31	384	11	52	26
4	38	12	16	132	11	27	26	260	0	0	31	388	12	37	26
8	37	16	16	136	10	47	26	264	0	1	31	392	13	23	25
12	36	21	16	140	10	9	27	268	0	3	31	396	14	11	25
16	35	26	17	144	9	31	27	272	0	7	31	400	14	59	25
20	34	30	17	148	8	45	27	276	0	12	31	404	15	48	24
24	33	35	17	152	8	19	27	280	0	19	31	408	16	38	24
28	32	40	18	156	7	44	28	284	0	28	30	412	17	30	24
32	31	45	18	160	7	10	28	288	0	38	30	416	18	22	23
36	30	50	19	164	6	38	28	292	0	50	30	420	19	15	23
40	29	56	19	168	6	7	28	296	1	3	30	424	20	9	23
44	29	3	19	172	5	37	28	300	1	17	30	428	21	4	22
48	28	10	20	176	5	8	29	304	1	33	30	432	22	59	22
52	27	16	20	180	4	41	29	308	1	50	30	436	22	55	22
56	26	23	20	184	4	15	29	312	2	8	30	440	23	53	21
60	25	30	21	188	3	49	29	316	2	28	30	444	24	51	21
64	24	38	21	192	3	24	29	320	2	51	30	448	25	49	21
68	23	47	21	196	3	1	29	324	3	15	29	452	26	48	20
72	22	56	22	200	2	40	30	328	3	40	29	456	27	48	20
76	22	5	22	204	2	20	30	332	4	6	29	460	28	48	19
80	21	15	22	208	2	1	30	336	4	34	29	464	29	49	19
84	20	26	23	212	1	42	30	340	5	3	29	468	30	50	19
88	19	37	23	216	1	25	30	344	5	34	29	472	31	51	18
92	18	48	23	220	1	10	30	348	6	5	28	476	32	53	18
96	18	0	24	224	0	58	30	352	6	38	28	480	33	55	17
100	17	14	24	228	0	47	30	356	7	13	28	484	34	57	17
104	16	28	24	232	0	36	30	360	7	50	28	488	35	59	17
108	15	42	24	236	0	26	30	364	8	27	27	492	37	1	16
112	14	57	25	240	0	18	30	368	9	6	27	496	38	5	16
116	14	13	25	244	0	12	31	372	9	46	27	500	39	8	15
120	13	30	25	248	0	7	31	376	10	27	27	504	40	11	15
124	12	48	26	252	0	4	31	380	11	9	26	508	41	15	14
128	12	7	26	256	0	1	31	384	11	52	26	512	42	17	14

Primæ Æquationes Conjunctionum Primi Satellitis cum Jove.

Num. A.	Æquat. Conjunct. Adde.		Æq Nu. B.	Num. A.	Æquat. Conjun. Adde.		Æq Nu. B.	Num. A.	Æquat. Conjun. Adde.		Æq Nu. B.	Num. A.	Æquat. Conjun. Adde.		Æq Nu. B.
	′	″			′	″			′	″			′	″	
512	42	17	14	640	70	26	3	768	77	40	0	896	61	48	6
516	43	19	14	644	71	3	3	772	77	29	0	900	61	2	7
520	44	21	13	648	71	38	3	776	77	18	0	904	60	15	7
524	45	23	13	652	72	11	2	780	77	6	0	908	59	28	7
528	46	25	13	656	72	42	2	784	76	51	1	912	58	39	8
532	47	26	12	660	73	13	2	788	76	34	1	916	57	50	8
536	48	27	12	664	73	42	2	792	76	15	1	920	57	1	8
540	49	28	11	668	74	10	2	796	75	56	1	924	56	11	9
544	50	28	11	672	74	36	1	800	75	36	1	928	55	20	9
548	51	28	11	676	75	1	1	804	75	15	1	932	54	29	9
552	52	27	10	680	75	25	1	808	74	52	1	936	53	38	10
556	53	25	10	684	75	48	1	812	74	27	1	940	52	46	10
560	54	23	9	688	76	8	1	816	74	1	2	944	51	53	10
564	55	21	9	692	76	26	1	820	73	35	2	948	51	0	11
568	56	17	9	696	76	43	0	824	73	8	2	952	50	6	11
572	57	12	8	700	76	59	0	828	72	39	2	956	49	13	11
576	58	7	8	704	77	13	0	832	72	9	2	960	48	20	12
580	59	1	8	708	77	26	0	836	71	38	3	964	47	26	12
584	59	54	7	712	77	38	0	840	71	6	3	968	46	31	12
588	60	46	7	716	77	48	0	844	70	32	3	972	45	36	13
592	61	38	6	720	77	57	0	848	69	57	3	976	44	41	13
596	62	28	6	724	78	4	0	852	69	21	3	980	43	46	13
600	63	17	6	728	78	9	0	856	68	45	4	984	42	50	14
604	64	5	5	732	78	13	0	860	68	7	4	988	41	55	14
608	64	53	5	736	78	15	0	864	67	29	4	992	41	0	14
612	65	39	5	740	78	16	0	868	66	49	4	996	40	4	15
616	66	24	5	744	78	15	0	872	66	9	5	1000	39	8	15
620	67	7	4	748	78	12	0	876	65	28	5	1004	38	12	16
624	67	49	4	752	78	9	0	880	64	46	5	1008	37	16	16
628	68	30	4	756	78	4	0	884	64	3	5	1012	36	21	16
632	69	10	4	760	77	58	0	888	63	19	6	1016	35	26	17
636	69	49	3	764	77	50	0	892	62	34	6	1020	34	30	17
640	70	26	3	768	77	40	0	896	61	48	6	1024	33	35	17

Secundæ Æquationes Conjunctionum Primi Satellitis cum Jove.

Addendæ.

Num. B. Æqu.	0		100		200		300		400		500		600		700		800		900	
	Æqu.		Æqu.		Æq		Æq.		Æq.		Æq.		Æq		Æq.		Æqu.		Æqu.	
	′	″	′	″	′	″	′	″	′	″	′	″	′	″	′	″	′	″	′	″
0	14	0	12	52	9	45	5	30	1	37	0	0	1	37	5	30	9	45	12	52
4	14	0	12	46	9	36	5	20	1	30	0	0	1	44	5	40	9	54	12	58
8	13	59	12	40	9	26	5	9	1	23	0	1	1	52	5	51	10	3	13	2
12	13	59	12	35	9	17	4	59	1	16	0	2	1	59	6	1	10	12	13	7
16	13	58	12	29	9	7	4	48	1	9	0	3	2	7	6	11	10	21	13	11
20	13	57	12	23	8	58	4	38	1	3	0	4	2	15	6	22	10	31	13	16
24	13	56	12	17	8	48	4	28	0	57	0	5	2	24	6	33	10	40	13	20
28	13	54	12	11	8	38	4	18	0	52	0	7	2	32	6	44	10	49	13	25
32	13	53	12	4	8	28	4	8	0	46	0	10	2	41	6	55	10	57	13	29
36	13	51	11	56	8	17	3	58	0	40	0	13	2	50	7	5	11	5	13	33
40	13	49	11	49	8	7	3	58	0	35	0	16	2	59	7	16	11	13	13	36
44	13	47	11	42	7	57	3	38	0	31	0	19	3	9	7	26	11	20	13	38
48	13	44	11	34	7	47	3	29	0	27	0	23	3	19	7	36	11	27	13	41
52	13	41	11	27	7	36	3	19	0	23	0	27	3	29	7	47	11	34	13	44
56	13	38	11	20	7	26	3	9	0	19	0	31	3	38	7	57	11	42	13	47
60	13	36	11	13	7	16	2	59	0	16	0	35	3	48	8	7	11	49	13	49
64	13	33	11	5	7	5	2	50	0	13	0	40	3	58	8	17	11	56	13	51
68	13	29	10	57	6	55	2	41	0	10	0	46	4	8	8	28	12	4	13	53
72	13	25	10	49	6	44	2	32	0	7	0	52	4	18	8	38	12	11	13	54
76	13	20	10	40	6	33	2	24	0	5	0	57	4	28	8	48	12	17	13	56
80	13	16	10	31	6	22	2	15	0	4	1	3	4	38	8	58	12	23	13	57
84	13	11	10	21	6	11	2	7	0	3	1	9	4	48	9	7	12	29	13	58
88	13	7	10	12	6	1	1	59	0	2	1	16	4	59	9	17	12	35	13	59
92	13	2	10	3	5	51	1	52	0	1	1	23	5	9	9	26	12	40	13	59
96	12	58	9	54	5	40	1	44	0	0	1	30	5	20	9	36	12	46	14	0
100	12	52	9	45	5	30	1	37	0	0	1	37	5	30	9	45	12	52	14	0

Tertiæ Æquationes Addendæ.				*Semidurationes Eclipſium Primi Satellitis Jovis.*															
Nu. A.	*Æquationes.*		*Num.* A.	*Nu.* A.	*Semidurationes.*			*Nu.* A.	*Semidurationes.*			*Nu.* A.	*Semidurationes*			*Nu.* A.	*Semidurationes.*		
	′	″			H.	′	″		H	′	″		H.	′	″		H.	′	″
0	3	30	1000	0	1	5	9	250	1	7	0	500	1	5	9	750	1	7	46
20	3	29	980	10	1	4	56	260	1	7	15	510	1	4	53	760	1	7	57
40	3	28	960	20	1	4	44	270	1	7	31	520	1	4	39	770	1	8	7
60	3	25	940	30	1	4	33	280	1	7	45	530	1	4	26	780	1	8	15
80	3	19	920	40	1	4	23	290	1	7	57	540	1	4	15	790	1	8	22
100	3	12	900	50	1	4	13	300	1	8	7	550	1	4	7	800	1	8	26
120	3	4	880	60	1	4	7	310	1	8	15	560	1	4	3	810	1	8	28
140	2	56	860	70	1	4	4	320	1	8	22	570	1	4	1	820	1	8	30
160	2	46	840	80	1	4	2	330	1	8	27	580	1	4	0	830	1	8	28
180	2	34	820	90	1	4	0	340	1	8	28	590	1	4	3	840	1	8	26
200	2	22	800	100	1	4	2	350	1	8	29	600	1	4	7	850	1	8	22
220	2	10	780	110	1	4	3	360	1	8	27	510	1	4	13	860	1	8	16
240	1	57	760	120	1	4	6	370	1	8	24	620	1	4	23	870	1	8	8
260	1	44	740	130	1	4	12	380	1	8	17	630	1	4	35	880	1	8	0
280	1	30	720	140	1	4	21	390	1	8	9	640	1	4	49	890	1	7	50
300	1	17	700	150	1	4	31	400	1	7	58	650	1	5	4	900	1	7	37
320	1	5	680	160	1	4	42	410	1	7	46	660	1	5	19	910	1	7	22
340	0	53	660	170	1	4	55	420	1	7	31	670	1	5	36	920	1	7	8
360	0	41	640	180	1	5	9	430	1	7	14	680	1	5	54	930	1	6	55
380	0	31	620	190	1	5	23	440	1	6	58	690	1	6	10	940	1	6	40
400	0	22	600	200	1	5	39	450	1	6	40	700	1	6	28	950	1	6	23
420	0	14	580	210	1	5	55	460	1	6	20	710	1	6	46	960	1	6	8
440	0	8	560	220	1	6	11	470	1	6	2	720	1	7	2	970	1	5	54
460	0	4	540	230	1	6	26	480	1	5	45	730	1	7	17	98	1	5	37
480	0	2	520	240	1	6	43	490	1	5	26	740	1	7	33	990	1	5	22
500	0	0	500	250	1	7	0	500	1	5	9	750	1	7	46	1000	1	5	9

The Uſe of the foregoing TABLES.

THE Eclipſes of the firſt Satellite of *Jupiter*, as has been already ſaid, afford the beſt means of determining the Longitude of places on the Land, where Teleſcopes of a convenient length may be uſed; thirteen of theſe Eclipſes happening every 23 Days; but it is requiſite that the Obſerver know near the matter when theſe opportunities offer themſelves, leaſt on the one hand he let them ſlip, or elſe grow weary by a too long attendance on them.

Thoſe therefore who are curious to obſerve them, may readily compute the times of the Immerſions or Emerſions of this Satellite, and that with great exactneſs, by the following very ſhort Precepts, which admit of no Exception or Caution, *viz.*

Out of the firſt Table take the *Epoche* for the Year, with its correſponding *Numb.* A and *Numb.* B; and to them add, out of the Tables of Months, the Day, Hour, Minute and Second, neareſt leſs than the time of the Eclipſe you ſeek for, together with its *Num.* A and B: the Sum of the times is the mean time of the middle of the Eclipſe. 2. With *Num.* A thus collected take out the firſt Æquation of the Conjunctions; as alſo the Æquation of *Num.* B. always to be added to *Num.* B. before found. 3. With *Num* B ſo equated, take out the ſecond Æquation of the Conjunctions; and in the laſt Table, the third Æquation, as alſo the Semi-duration of the Eclipſe anſwering to *Num.* A. 4. To the mean time of the middle of the Eclipſe, add all thoſe three Æquations; the Sum ſhall be the true equated time of the middle of the Eclipſe ſought. 5. If *Num.* B. equated be leſs than 500, ſubſtract the

the Semiduration, and you will have the time of the Immerſion, or if it be more than 500, adding the ſame, it will give the time of the Emerſion

But Note, the times thus found are equal time, ſtill to be reduced to the Apparent: and that in the *Biſſextile* Year, after *February*, one Day is to be deducted from the Day of the Month.

The leſs ſkilful may perhaps be pleas'd with an Example or two, which may ſerve them to imitate. Let it be required to find the time of the Immerſion of this Satellite into *Jupiter*'s ſhadow, *November* the *9th* 1719. in the Morning. The Work ſtands thus,

	D. h.	' "	Nu. A.	Nu. B.	
1719.	1 . 6 .	11 . 13	872	396	
Novemb.	7 . 11 .	53 . 29	72	776	
Conj. Med.	8 . 18 .	4 . 42	944	172	
Æquat. I.		51 . 53		10	Æq. B.
Æquat. II.		10 . 26		182	B. Æquat.
Æquat. III.		3 . 26			
	8 . 19 .	10 . 27			
	1 .	6 . 33	*Semidur. Subſt.*		
Novemb.	8 . 18 .	3 . 54			

So that by this *Calculus*, on the ninth of *Novemb.* at 4 Minutes after 6 in the Morning, equal Time, may be ſeen the *Immerſion* of this Satellite into *Jupiter*'s ſhadow.

Another Example ſhall be of the *Emerſion* on the fifth of *April* 1720. *viz.*

	D. h. ′ ″	Nu. A.	Nu. B.	
1720.	0.20.22.40	956	310	
April	4.13.44.22	Biſs. 22	244	
Conj. Med.	5.10.07.02	978	554	
Æquat. I.	44.13		13	Æq. B.
Æquat. II.	0.45		567	B. Æquat.
Æquat. III.	3.29			
	1. 5.40	*Semidur. Add.*		
April	5.12.01.09			

Hence it appears that at one Minute after Midnight following the fifth of *April*, equal Time, will happen the Emerſion required. Nor do we doubt but that the Event will very nearly anſwer.

Laſtly, it may not be amiſs here to inform the Reader, that we have learnt, by the experience of many Years Obſervation, that the ſecond inequality of this Satellite proceeds from the progreſſive Propagation of Light, and is common to all the reſt of the Satellites: Light, being found to proceed in about ſeven Minutes of time as far as from the Sun to the Earth, whether with an equable motion or otherwiſe is ſtill a queſtion. For this reaſon we have added a *Third Æquation*, whereby to account for the greater diſtance of *Jupiter* from the *Earth* in *Aphelio* than in *Perihelio*, as the *Second Æquation* anſwers to the greater diſtance of the Planet when near the Conjunction of the Sun, than when near his Oppoſition.

FINIS.

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